

**This Page Is Inserted by IFW Operations
and is not a part of the Official Record**

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- **BLACK BORDERS**
- **TEXT CUT OFF AT TOP, BOTTOM OR SIDES**
- **FADED TEXT**
- **ILLEGIBLE TEXT**
- **SKEWED/SLANTED IMAGES**
- **COLORED PHOTOS**
- **BLACK OR VERY BLACK AND WHITE DARK PHOTOS**
- **GRAY SCALE DOCUMENTS**

IMAGES ARE BEST AVAILABLE COPY.

**As rescanning documents *will not* correct images,
please do not report the images to the
Image Problem Mailbox.**



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/630,154 | 07/31/2000 | Roland Rupp | GR 98 P 3052 | 5435 |

7590 01/15/2003

Lerner and Greenberg PA
Post Office Box 2480
Hollywood, FL 33022-2480

EXAMINER

KACKAR, RAM N

ART UNIT

PAPER NUMBER

1763

DATE MAILED: 01/15/2003

8

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicant N .

09/630,154

Applicant(s)

RUPP ET AL.

Examiner

Ram N Kackar

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 December 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1- 15 is/are pending in the application.
- 4a) Of the above claim(s) 11-14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Election of claims 1-10, drawn to an apparatus is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In this instance the phrase “ thickness decreasing with an increasing distance from the substrate” is not understood.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-4, 7-10 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi et al (JP 02248393) in view of Holcombe et al (US 5443892).

Art Unit: 1763

Kobayashi discloses a susceptor to hold substrates for vapor growth device having a plurality of carbon inserts which would be like tiles having depressions for substrates (Fig 1-3).

Kobayashi et al do not disclose carbon insert to have a coating of metal carbide.

Holcombe et al teaches that at high temperature carbon diffuses from graphite and a coating of carbide forming material like tantalum, niobium, tungsten and molybdenum prevents this diffusion by forming layer of carbide within the metal layer (Col 1 line 11 and Col 4 line 48-64).

Therefore it would have been obvious for one having ordinary skill in the art at the time invention was made to apply metal carbide to enable processing at high temperature.

6. Claims 1-4, 7, 9-10 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi et al (JP 02248393) in view of Yamaga et al (US 5614447).

Kobayashi discloses a susceptor to hold substrates for vapor growth device having a plurality of carbon inserts which would be like tiles having depressions for substrates (Fig 1-3).

Kobayashi et al do not disclose carbon insert to have a coating of metal carbide. Yamaga discloses the use of carbide film as a good absorber for infrared rays (Col 5 line 62 to Col 6 line 3).

Therefore, it would have been obvious for one having ordinary skill in the art at the time invention was made to apply metal carbide coating to enable uniform heating due to high absorption of infrared rays and high melting point of metal carbides.

7. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi et al (JP 02248393) in view of Holcombe et al (US 5443892) as applied to claim 1 and further in view of Drage (US 4793975) and Doi et al (US 4507189).

Kobayashi et al do not disclose a removable insert of metal.

Drage discloses a removable insert of metal (Abstract) but does not disclose the insert to have a coating of metal carbide. Doi et al teaches that metal carbide coating improves wear resistance, heat resistance and corrosion resistance (Col 1 line 8-20).

Therefore it would have been obvious for one having ordinary skill in the art at the time invention was made to apply a metal carbide coating to the metal insert to improve their surface properties and increase usable life.

Response to Amendment

8. Applicants amendments filed 12/18/2002 have been considered but not found to be persuasive. Applicants arguments and examiners response follow.

Applicant: Claim 6 rejection under 35 U.S.C. 112.

Examiner: Applicants response to overcome this rejection is not understood. The specification as it exists cannot remove this deficiency. The thickness may only increase or decreases with respect to any point on the substrate itself and not from a point away from the substrate.

Applicant: Rejections based on Holcombe et al (US 5443892).

Examiner: Holcombe has tried to solve the same problem of migration of contaminant like carbon from graphite to the susceptor. The issue of diffusion of carbon from graphite susceptor to the substrate at higher temperature used for CVD deposition and epitaxy has been known for a long time. For this reason graphite is hardly ever used alone to hold a substrate. Very frequently silicon carbide coating on graphite is sufficient

to stop this diffusion. Metal carbides stop the diffusion of carbon in the same way even at a higher temperature. Holcombe teaches this mechanism very clearly (Col 4 lines 48 onwards). Metal carbides in addition to preventing diffusion of carbon as a carbide material; also provide other advantages like of wear resistance and stability at high temperatures. In view of this, using metal carbide coating at high temperature would have been obvious. The first coating on the graphite forms metal carbide. Second and third layers disclosed in Holcombe are only to protect this coating from delamination.

Applicant: Rejections based on Yamaga et al (US 5614447).

Applicant suggests that Combination of Yamaga with Kobayashi et al is improper because the purpose of having metal carbide layer is not for prevention of diffusion but absorption of heat through infrared rays.

Examiner: Yamaga clearly provides a teaching of metal carbide layer for heat absorption and for not showing deformation at high temperature. These teachings and wear resistance of metal carbides which is well known would have made it obvious to one of ordinary skill to apply a coating of metal carbide to Kobayashi et al.

Applicant: Rejections based on Drage (US 4793975) and Doi et al (US 4507189).

Examiner: This rejection is based on the teaching in Doi about hard coatings of metal carbides which are wear resistant, heat resistant and corrosion resistant. As

Art Unit: 1763

substrates sit on susceptor this coating would be useful for the above reasons.

Applicant: Concluding remarks on hindsight.

Examiner: In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). Examiners combination of references depends upon the teaching provided in the references and generally well known facts. Therefore the combinations are not improper.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: US 5685906, 5121705 and 4499354 and JP 61251021.

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

Art Unit: 1763

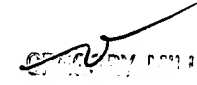
MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ram N Kackar whose telephone number is 703 305 3996. The examiner can normally be reached on M-F 8:00 A.M to 5:P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on 703 308 1633. The fax phone numbers for the organization where this application or proceeding is assigned are 703 872 9310 for regular communications and 703 872 9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 0661.

RK
January 10, 2003


GREGORY MILLS
SUPERVISOR, EXAMINER
TECHNOLOGY CENTER 1760